

CLAIMS

1. A telephone system wherein analogue telephone signals are frequency multiplexed with digital data signals for transmission over a line (3),

CHARACTERISED IN THAT an incoming telephone call is announced by a ringing indication signal having a voltage amplitude less than 30 V RMS.

2. The telephone system of claim 1,
wherein said ringing indication signal has a voltage amplitude less than
20 V RMS.

3. The telephone system of claim 1 ~~or 2~~;
wherein said ringing indication signal has a voltage amplitude higher than 1 V RMS.

4. The telephone system of claim 1 ~~or 2,~~
wherein said ringing indication signal has a voltage amplitude higher than 10 V RMS.

5. The telephone system of ~~one of claims 1 to 4,~~
wherein the ringing indication signal has a spectrum causing no
detectable components in the frequency band for digital data signals.

6. The telephone system of ~~one of claims 1 to 5,~~
~~wherein the ringing indication signal has a frequency lower than the~~
frequency of analogue telephone signals.

7. The telephone system of ~~one of claims~~ 1 to 4,
wherein the ringing indication signal has a frequency that is one
frequency of a set of available data carriers for digital signals, said digital data
signals being transmitted using data carriers with frequency above said one
frequency.

8. A central office installation (1) for transmitting and receiving over a line (3) frequency multiplexed analogue telephone signals and digital data signals, comprising a splitter (6) for demultiplexing and multiplexing analogue telephone signals and digital data signals, a digital data signals device (18) connected to the splitter (6) for transmitting and receiving digital data signals, and an analogue telephone signals device (14) connected to the splitter (6) for transmitting and receiving analogue data signals,

CHARACTERISED IN THAT the analogue telephone signals device (14) transmits a ringing indication signal for announcing an incoming telephone call, said ringing indication signal having a voltage amplitude less than 30 V RMS.

9. The installation of claim 8, wherein said ringing indication signal has a voltage amplitude less than 20 V RMS.

10. The installation of claim 8 ~~or 9~~, wherein said ringing indication signal has a voltage amplitude higher than 1 V RMS.

11. The installation of claim 8 ~~or 9~~, wherein said ringing indication signal has a voltage amplitude higher than 10 V RMS.

12. The installation of ~~one of claims 8 to 11~~, wherein the ringing indication signal has a spectrum causing no detectable components in the frequency band for digital data signals.

13. The installation of ~~one of claims 8 to 12~~, wherein the ringing indication signal has a frequency lower than the frequency of analogue telephone signals.

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14. The installation of ~~one of claims 8 to 14~~,
wherein the ringing indication signal has a frequency that is the
frequency of a data carrier for the digital signals.

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15. The installation of ~~one of claims 8 to 14~~,
wherein the analogue telephone signals device (14) transmits a ringing
signal for announcing an incoming telephone call when said digital data signals
device does not receive digital data signals, said ringing signal having a voltage
amplitude higher than said ringing indication signal.

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16. The installation of ~~one of claims 8 to 15~~,
wherein said splitter (6) comprises a low pass filter (10) for filtering
analogue telephone signals, and a high pass filter (12) for filtering digital data
signals, and wherein the order of said low pass and high pass filters is less than
5, and preferably less than 2 or 2.

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17. A splitter (30) for transmitting and receiving over a line port
frequency multiplexed analogue telephone signals and digital data signals, said
splitter comprising means (38, 42) for demultiplexing and multiplexing analogue
telephone signals and digital data signals, a telephone port for transmitting and
receiving analogue telephone signals to and from said demultiplexing and
multiplexing means, and ringing signal generation means (48) for generating a
ringing signal applied to the telephone port when a ringing indication signal is
received over said line port, said ringing signal having a voltage amplitude
higher than said ringing indication signal.

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18. The splitter according to claim 17,
wherein said ringing indication signal has a voltage amplitude less than
30 V RMS.

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19. The splitter of claim 17,

wherein said ringing indication signal has a voltage amplitude less than 20 V RMS.

a 20. The splitter of claim 17, ~~18 or 19~~,
5 wherein said ringing indication signal has a voltage amplitude higher than 1 V RMS.

a 21. The splitter of claim 17, ~~18 or 19~~,
10 wherein said ringing indication signal has a voltage amplitude higher than 10 V RMS.

09707975-110800 a 22. The splitter of ~~one of claims 17 to 21~~,
15 wherein the ringing indication signal has a spectrum causing no detectable components in the frequency band for digital data signals.

a 23. The splitter of ~~one of claims 17 to 22~~,
wherein the ringing indication signal has a frequency lower than the frequency of analogue telephone signals.

a 24. The splitter of ~~one of claims 17 to 21~~,
20 wherein the ringing indication signal has a frequency that is the frequency of a data carrier for the digital signals.

a 25. The splitter of ~~one of claims 17 to 24~~,
25 further comprising switching means (40) for isolating said telephone port from said line port when a ringing signal is generated and applied to said telephone port.

a 26. The splitter of ~~one of claims 17 to 25~~,
30 wherein said demultiplexing and multiplexing means comprise a low pass filter (38) for filtering analogue telephone signals, and a high pass filter

(42) for filtering digital data signals, and wherein the order of said low pass and high pass filters is less than 5, and preferably less than 2 or 2.

27. The splitter of ~~one of claims 17 to 26~~,

- 5 further comprising a digital data signals port for transmitting and receiving digital data signals to and from said demultiplexing and multiplexing means, switching means (44) between said digital data signals port and said line port, and power detection means (50) for detecting improper power supply to the splitter and for opening said switching means (44) when improper power
- 10 supply is detected.

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